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Students and the Challenges of Using Information Technology in Education Case Study: Azad University Iran Library Students

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Abstract

Objective: The purpose of this study was to investigate the barriers to using information technology in the education of librarian students of Tehran Iran Azad University.

Methodology: The purpose of this study is an applied descriptive survey. The statistical population of this study includes all students studying at Tehran Azad University. Based on Cochran's formula, 107 people were selected based on stratified random sampling criteria and the required information was collected through a researcher-made questionnaire with 27 items.

Finding: Finding: Among the five dimensions studied in this study, technical barriers with a mean of 4.067, human barriers with a mean of 4.027, managerial barriers with a mean of 4.022, economic barriers with a mean of 4.016 and cultural barriers with a mean of 3.469 ranks first to fifth, respectively. Contrary to the initial notion of managerial barriers, the present study ranked third.

Results: Based on the findings of the study, the five dimensions of the study examined suggested that their findings could be practical solutions to remove the barriers to implementing information technology in the education of the research community and other related areas provide.

Keywords: University Education, Information Technology, Tehran Azad University, Technology Barriers, Librarianship

Introduction

In the late '50s, a change began in the world, later called the Third Wave. Since then, information technology as a leader and leader of this pioneering wave has continually brought new innovations to mankind. The pace of these innovations has increased so much that the stages of development of an innovation have not yet been completed, a newer product with less costly inventions and out-of-date patents. In fact, technology consists of knowledge of the principles and ability to achieve the desired results that information technology also follows (Hashemiffer, 2016). As Navabzadeh (2017) states, it is a set of processes for collecting, storing, processing, distributing and retrieving information that is formed in a communication platform based on computer infrastructure and telecommunications equipment. , Information technology. Education and learning have been one of the areas that have provided a good basis for the use of information technology in recent years. In general, major reasons can be stated, such as improving the quality of learning, improving access to education, reducing training costs, and reducing the cost of teaching effectiveness for using information technology in higher education (Mouzakitis, 2009).

Social, economic, and technological changes of the last few decades, as Mary (2000) and McKnight (1995) states that it has made education accessible to all and has reduced illiteracy rates worldwide for the last 30 years. Information technology plays a key role in ensuring the quality of higher education and is the foundation of universities' competitive advantage. Scholars such as Hassanzadeh (2015), Babaei (2012), Norouzi (2017) also emphasize this. On the other hand, although information technologies have advantages for improving teaching methods, the barriers that may be effective in their application can be identified. Therefore, it is necessary to identify the barriers to student education at universities and ways to interact with them. Research has also been carried out in this area by McKnight (1995), Meerts (2003) and Aduwa & Iyamu (2005), but despite studies and research conducted at home and abroad, a framework that can be used identifies information technology barriers in Iranian universities, has not been formulated.

Given the current state of the higher education system within the country in utilizing information technologies and the specific mission of the Azad University in the field of distance education, identifying the barriers to the use of information technology in this university can solve many problems. Be aware of its problems. Therefore, in the present study, Azad University and the education of librarian students studying in it were selected as the study population. It is hoped that the results of the present study can be effective in removing the managerial, technical, human, economic and cultural barriers to the application of information technology in the education of the study population and other related areas. It should be noted that dimensions such as standards, security and policy making are not of interest to the present study and may be the subject of further research.

Research questions

1- What is the status of managerial barriers to the use of information technology in the education of the community under study?
2. What is the status of the technical barriers to the use of information technology in the education of the study population?
3. What is the status of human obstacles to the use of information technology in the education of the study community?
4. What is the status of the economic barriers to the use of information technology in the education of the study population?
5. What is the state of cultural barriers to the use of information technology in the education of the study community?

Literature review

Fletcher et al. (1990) reported from their research findings that computer use in education can reduce training time and costs by up to one third compared to the traditional method. In addition, reduce the density of the class in terms of the number of students and increase the time of instruction so that all students acquire the required skills. From a learning point of view, effective use of computers by teachers and students can lead to higher motivation, more confidence, better question asking, better presentation, improved performance in the shadow of information, and ultimately, improved work time.

Hamilton & Retha (2004) compared the utilization rate of three South African academic libraries for the intranet as a tool for achieving knowledge-based change. Based on the results, the intranet is one of the most effective ways of sharing knowledge and information in organizations that can be used as a repository of objective knowledge in libraries with different contents and support the flow of information. They believe that if libraries use and share knowledge, their services will be improved and users will be able to share their knowledge widely. In another study, Aduwa & Iyamu (2005) studied attempts to use information and communication technology and its problems in Nigerian high schools, they found that high school communication, poor cost and infrastructure, lack of related software and lack of Internet access is a problem for students with the use of information technology. In a study, Tarvid (2008) also examined some of the existing indicators for measuring countries' e-readiness and some of the proposed models for higher education institutions. The researcher's proposed model had two features: first, it was reusable, and second, it included all relevant variables. The results showed that the presented framework is efficient and the indices can be easily measured and interpreted.

Looking at the research done in Iran and outside Iran, we find that the researchers have achieved the following results: Major changes in the way of management and use of educational media, media and New technologies: The impact of infrastructure barriers on the use of information technology and, ultimately, the use of information technology reduces training time and increases learning and productivity. Therefore, considering the benefits of using information technology in education, it is important to identify barriers in this area. Therefore, the present study seeks to address this issue in an environment with a distance education mission and among librarian students who must have sufficient proficiency in this field. It is hoped that the findings can be helpful in other similar environments as well.

Research methodology

The present study is of applied purpose and of descriptive survey method. To collect data, a researcher-made questionnaire was used to investigate the barriers to using information technology among librarian students of Tehran Iran Azad University in managerial, technical, human, economic and cultural dimensions.

The statistical population of the present study was obtained by Cochran formula and the following relationship.

$$n = \frac{N\left[z_{1-\frac{\alpha}{2}}\right]^2 \left(P.(1-P)\right)}{(N-1)d^2 + \left(\left[z_{1-\frac{\alpha}{2}}\right]^2 P.(1-P)\right)}$$

In this formula, the parameter P is the ratio and, given its uncertainty, to maximize sample size, its value is assumed to be P = 0.5. Therefore, taking into account the available values (initial population of 160) and placing it in the above relation, the required sample size was obtained where d is the absolute parameter estimation error and α is the first type error. In this study, d is considered to be 0.05. By placing these values in the above relation, the required minimum sample size were 107 of the statistical population, 76 were female and 31 were male. In addition, Table 1 lists the educational levels of the students under study.

Table1. Education levels of the statistical population

Education level	Frequency	Level Frequency	Correct frequency	Cumulative Frequency
First year	1	0.9	0.9	0.9
Second year	5	4.7	4.7	5.6
Third Year	24	22.4	22.4	0.28
Fourth year	51	47.4	47.7	75.7
Higher	26	24.3	24.3	100
Total	107	100	100	

As can be seen in Table 1, more than 50% of the study population has more than four years of educational experience, so they are expected to comment on some of the managerial components.

To assess the reliability of the questionnaire in a sample of 30, Cronbach's alpha coefficient was used which was above 75% for this questionnaire. The Cronbach's alpha coefficient obtained for each of the five dimensions studied in this study can be seen in Table 2.

Table2. Cronbach's alpha coefficient of the five dimensions studied in this study

Dimensions	Number of questions	Cronbach's alpha coefficient
Management dimension	5	%791
Technical dimension	6	%848
Human dimension	7	%829
Economic dimension	4	%736
Cultural dimension	5	%792

As shown in Table (2), the alpha obtained for all dimensions is greater than 70%. Therefore, it can be concluded that the reliability of the questionnaire used in this study is acceptable.

Research findings

In this section, the data obtained from the research in response to research questions about the barriers to the use of information technology in the education of the study community are presented in each of the five dimensions examined in this study.

First question: What is the status of managerial barriers to the use of information technology in the education of the community under study?

Table3. The status of managerial barriers to the use of information technology in the study population

Components of Management Dimension	No answer		Very much		Much		medium		low		Very low	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Influence of manager's decisions	-	-	26	24.3	67	62.6	13.1	14	-	-	-	-
The effect of managers' cognition	-	-	45/8	49	46/7	50	5/6	6	0/9	1	0/9	1
Impact of Managers Skills	0/9	1	44/9	48	39/3	42	39/3	10	3.7	4	1.9	2
Impact of the level of cooperation of managers		-	32/7	35	41/1	44	16/8	18	3/7	4	0/9	1
Impact of managerial risk taking	0/9	1	9/3	10	35/5	38	39/3	42	13/11	14	1/9	2

As the data in Table 3 show, regarding the status of managerial barriers to using information technology, the "managers' knowledge" with 45.8% and "manager's riskiness" with 9.3%, the highest and they have had the least impact on this very large scale.

The analytical data related to this dimension can be seen in Table 4, where the impact of managerial dimension with the mean of 4.0220 is higher than the mean of criterion 3 (the aim of this study was to determine the mean of each dimension).

Table4. Data on managerial barriers to information technology use in the study population

Dimension	Variance	Standard deviation	Average	Maximum	At least	Sample size
Management	306٪	5529٪	4/0220	5	1/80	107

Question2: What is the status of the technical barriers to the use of information technology in the education of the study population?

Table 5. The status of technical barriers to the use of information technology in the study population

Technical Dimensions	No answer		Very much		Much		medium		low		Very low	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Impact of students' access to hardware	-	-	20/6	22	42/1	45	27/1	29	7/5	8	1/9	2
The Impact of Student Access to Software	0/9	1	29/9	32	54/2	58	12/1	13	2/8	3	-	-

The bandwidth effect	0/9	1	56/1	60	22/4	24	15/9	17	3/7	4	0/9	1
Impact of Internet access	-	-	56/1	60	31/8	34	8/4	9	1/9	2	1/9	2
The Impact of Private Space	-	-	16/8	18	39/3	42	29/9	32	8/4	9	3/7	4

As can be seen in Table 5, regarding the status of the technical barriers to the use of information technology, "Internet bandwidth and speed" and "Internet access" were the most effective with 56/1 and "the availability of dedicated space" with 16.3 have the least impact at the very high level.

Also the analytical information related to this dimension can be seen in Table 6 where the impact of Technical dimension is 4.67 higher than the mean of criterion 3.

Table6. Data on technical barriers to the use of information technology in the study population

Dimension	Variance	Standard deviation	Average	Maximum	At least	Sample size
Technical	**345٪**	**5877٪**	**4.670**	**5**	**1.83**	**107**

Question 3: What is the status of human obstacles to the use of information technology in the education of the study community?

Table7. The status of human barriers to the use of information technology in the study population

The human dimension	No answer		Very much		Much		medium		low		Very low	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Impact of specialist manpower shortage	-	-	28	30	43/9	47	18/7	20	7/5	8	1/9	2
The Impact of Human Understanding	0/9	1	37/4	40	38/1	41	12.1	13	7/5	8	3/7	4
Impact of staff empowerment	0/9	1	37/4	40	38/1	41	12.1	13	7/5	8	3/7	4
Impact of teachers' empowerment	1/9	2	33/6	36	47/7	51	14	15	2/8	3	-	-
Influence of type of staff relations with student	0/9	1	26/2	28	42/1	45	23/4	25	6/5	7	0/9	1
Impact of employee motivation	-	-	36	36	52	52	12/1	13	3/7	4	1/9	2
Impact of support for the education system	-	-	29/9	32	55/1	59	10/3	11	2/8	3	1/9	2

The data in Table (7) show that in terms of human barriers in using information technology, "lack of proper understanding of human resources" with the most effective 37.4 and "lack of specialized human resources" with 28% the lowest They have a great deal of influence.

Analytical information related to this dimension can be seen in Table (8) that the effect of the human dimension with a mean of 4.027 is higher than the mean of criterion 3.

Table8. Data on Human Obstacles to the Use of Information Technology in the Study Population

Dimension	Variance	Standard deviation	Average	Maximum	At least	Sample size
The human	**265٪**	**5148٪**	**4.027**	**5**	**2.29**	**107**

Question 4: What is the status of the economic barriers to the use of information technology in the education of the study population?

Table9. The status of economic barriers to the use of information technology in the study population

The economic dimension	No answer		Very much		Much		medium		low		Very low	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Impact of university infrastructure facilities	-	-	39/3	42	44/9	48	13/1	14	0/9	1	1/9	2
Budget and financial impact	-	-	41/1	44	41/1	44	11/2	12	2/8	3	0/9	1
Impact of equipment costs	0/9	1	19/6	21	58/9	63	15/9	17	2/8	3	1/9	2
Impact of laboratory equipment	5/6	6	30/8	33	49/5	53	11/2	12	2/8	3	-	-

The data in Table 9 show that in terms of economic barriers to information technology use, "budget and finance" were the most effective with 41.1 and "startup costs" the least effective with 19.6. The impact is at a very high level, while the "impact of the university's physical facilities on the use of information technology" is the next most influential.

Analytical data can be seen in Table 10 where the impact of the human dimension is 4.116 higher than the mean of criterion 3.

Table10. Data on Human Obstacles to Information Technology Use in the Study Community

Dimension	Variance	Standard deviation	Average	Maximum	At least	Sample size
The economic	366٪	6053٪	4.016	5	1.75	107

Question 5: What is the state of cultural barriers to the use of information technology in the education of the study community?

Table11. The status of cultural barriers to the use of information technology in the study population

The cultural dimension	No answer		Very much		Much		medium		low		Very low	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
The Impact of the Culture of Use IT	-	-	24/3	23	33/6	36	30/8	33	9/3	10	1/9	2
The Impact of Supporting People Leading the Use of IT	-	-	48/6	52	37/4	40	11/2	12	1/19	2	0/9	1
The impact of accepting change	-	-	18/7	20	42/1	45	29	31	8/4	9	1/9	2
The impact of supportive policies	-	-	34/6	37	43	46	18/7	20	3/7	4	-	-
The Impact of Transparency on Cultural Space	0/9	1	9/3	10	35/5	38	39/3	42	13/11	14	1/9	2

As can be seen in Table 11, in terms of the economic barriers to the use of information technology, "Vanguard Support" with 48.6 had the most impact and "Employee Acceptance Change" with 18.7 had the least impact. They have a very high level. In addition, "the impact of acceptance of transparency in the university's cultural space on the use of information technology" is the next most influential.

The analytical information related to this dimension can be seen in Table 12, where the impact of the human dimension with a mean of 3.469 is higher than the mean of criterion 3.

Table12. Human barriers to information technology use in the study population

Dimension	Variance	Standard deviation	Average	Maximum	At least	Sample size
The cultural	371٪	6092٪	3/469	5	1.60	107

Discussion and Conclusion

The results of this study, which examines the barriers to using information technology in the education of information science and science students of Tehran Iran Azad University, show that the studied aspects have been confirmed in several sources. These dimensions can be used as an advantage in this regard if considered. Researchers such as Davarpanah (2012), Montazer (2014), Mohtadi (2013) have emphasized this issue. One of the obstacles considered in this study is the managerial dimension which is ranked third in terms of importance in utilizing information technology in education with average of 4.022 while earning high marks. Also, one of the important points in this dimension can be mentioned the sub component "Impact of managers' perception of information technology" which has the highest score in this dimension which indicates its importance. In fact, without cognition, there is no movement, and this is not hidden from the viewpoint of the community under study, with the next rank of "influencing managers' IT skills" being the emphasis on cognition. That is because no cognition will begin, no skill will begin.

Thus, as Maningas & Mancebo (2004) have argued, the emphasis on managerial dimensions in each context can be a good start in other steps. The technical dimension, which is one of the necessary infrastructures for the use of any technology, especially information technology, is at the top with a mean of 4.067. As Mohtadi (2013) points out, technical preparation is of great importance in terms of infrastructure. Therefore, as the findings of the present study show, "Internet bandwidth and speed" and "Internet access" are more important than the statistical community in this regard with the highest score in the technical dimension. Therefore, the components of this dimension require a great deal of attention before any action, especially in the discussion of educational technologies that requires the interaction of the learner with the learner, while the computer equipment is influenced by this dimension in Next rank is. Therefore, as Fletcher and others (1990) point out, it is necessary to provide the necessary infrastructure and communications infrastructure, high bandwidth, and equipment before any action is taken.

After the technical and managerial barriers to the use of information technology in education are removed, the human dimension comes to the fore. As the findings of the present study show, human barriers are ranked second among the other dimensions with a mean score of 4.027 in this context; of course, the emphasis of the present study is on the executive issues of human resources. Among the sub-components examined in this dimension, we can mention the "proper understanding of human resources" and the "lack of specialized human resources" in this field, with the highest score in this dimension being achieved in terms of impact. In addition, the findings of Olumi (2016) research also emphasize this. Therefore, the training of specialist staff in the field of utilization and operation of information technology is of particular importance. The economic dimension was ranked fourth with an average score of 4.116 obtained in this study, indicating that budget issues are important when other dimensions are provided, although budget projections at the start of each project it is very important. Among the sub-components examined in this dimension can be found the budget and financial resources "and" start-up costs "that were highly rated among the population under study. Findings by Aduwa & Iyamu (2005) There is confirmation of this. When preparing the necessary dimensions for the launch of information technology, it comes to cultural and cultural readiness. According to the findings of the present study, components such as "support for the pioneer" and "acceptance of change by the staff" have the greatest impact on removing the cultural barriers to the use of information technology, while the effect of "adopting transparency in the cultural environment of the university". In the use of information technology "is also important among the components examined.

Therefore, according to the findings of the present study, some strategies can be suggested for better utilization of information technology in student education, especially at Azad University, which include: using managers who are familiar with information technology and can access their knowledge; Possible barriers to access; access to information technology equipment at the university, without which it is difficult to advance the university's educational objectives; In the use of information technology itself, while benefiting Taking advantage of it can also be helpful in encouraging students to use these technologies. Increasingly, the authorities pay attention to the economic and cost dimensions of students' use of information technology and, ultimately, to the provision and infrastructure needed including hardware, software, communications networks, and educational resources.

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